## GOGOS RETIRES AFTER 35 YEARS WITH BBN

Dick Gogos, a division scientist who is retiring this June, has been with BBN since 1953, when it was located in a six-flat frame apartment building at 16 Eliot St. in Harvard Square. Dick's specialty is underwater acoustics—particularly the study of long- and short-range acoustic propagation in the ocean, sonar research, and the measurement of underwater acoustic signals—but he explains that when he joined BBN the company was involved in air acoustics only.

Dick came to BBN while he was a student in the Northeastern University co-op program— "I must have been one of the first co-op students to work here," he says. He studied electrical engineering in college, and although he took some acoustics courses, he says he might have done something else had he not come to BBN. His interest in acoustics came from the fact that he worked here. Dick worked originally with Jordan Baruch, one of BBN's founders, who later went on to become Assistant Secretary for Science and Technology for the U.S. Department of Commerce.

Early Projects

His first project, with Francis Wiener (a BBN acoustics research scientist), was an experimental study of acoustic propagation over various types of earth surfaces, such as over flat low vegetation, through wooded areas, across mountain valleys, over ocean waters in fog, and in city and suburban environments. Detailed meteorological observations were used in a novel way to explain the results of the acoustical measurements. The U.S. Army used the results of these measurements in the field for troop communication, the civil defense program used them in designing warning systems for city and suburban populations, and the U.S. Coast Guard used them in the design of fog horns.
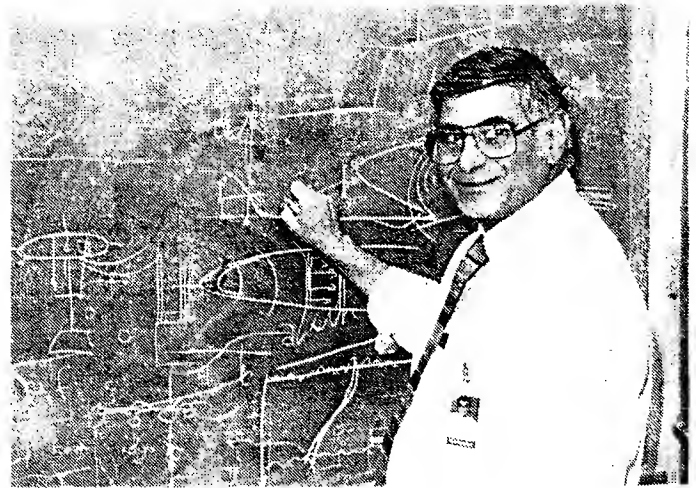
Dick Gogos

BBN's first underwater acoustics experimental program came through the study of acoustic reflectivity of various types of ocean bottoms using explosives as sound sources. This information was needed during the early design of "bottom-bounce sonars" that are in use today on modern naval vessels. BBN did pioneering work on developing these measurement techniques and went on to do more work in ocean-bottom research for the Navy.

Bottom loss studies have been an important BBN activity, and Dick and his fellow researchers in this area have traveled all over the world, often spending a month or more at sea. "We went where the oceans were," he says, pointing to a large map of the world that hangs on the wall of his office. "We've worked in the Atlantic, the Pacific, the Barents Sea, and the South China Sea."

An early program Dick worked on was the Moored Surveillance System, in which BBN was a subcontractor to General Electric Co. Originally the testing for this program took place in the ocean waters off

eastern Canada, where the hostile winter climate made testing erratic and unsuccessful. Dick suggested finding a more benign site that would allow year-round testing. "After investigating various sites in Bermuda and the Bahamas we settled on St. Croix in the U.S. Virgin Islands. Since it was a U.S. territory and there were Navy facilities on the island."

At the naval facility in St. Croix, BBN researchers have done extensive testing on both the mechanical and acoustic operations of air guns. An air gun, which is not a gun at all but a high-level impulsive sound source that looks like a large cylinder, is a component of a surveillance system that can be used in the long-range detection of submarines. The use of air guns was a novel development in underwater acoustics because it used impulsive signals instead of the conventional sonar signals. Jim Barger, one of BBN's chief scientists, was a major proponent of the use of air guns in underwater acoustics and an important figure in their development for use as a sound source.

Growth in Underwater Acoustics

Our first major underwater acoustics program, and perhaps our most challenging at the time, according to Dick, involved work on measurement of radiated noise of the MK 48 torpedo during its early development. This program came along early in BBN's experience in the field of underwater acoustics, and at the time they took it on it represented quite a stretch for them. "We were in a learning process," Dick comments. The project required knowledge in many areas of acoustics; they had to learn about environmental effects, the effects on acoustic signals propagating through the ocean, how to deal with the variations caused by this environment, and systems that would allow measurement of the radiated noise of these high-speed vehicles.

Because it touched on so many different aspects of underwater acoustics and ocean engineering, the program was an important one that gave BBN an opportunity to expand its knowledge. "The technology used for the project was developed during World War II, and to this day it is still being used," Dick says; "we've just refined it." Underwater acoustics was a new activity for BBN at the time, and we were one of the few companies engaged in it. The organizations working in this field were chiefly Navy laboratories. "We had to learn fast and be sufficiently inventive to find work within the Navy

community and be competitive. There was lots of work around, and we found a niche we were interested in and got strong enough to be an asset to the Navy labs." This was one of the ways that BBN got started on activities that it continues to pursue today. The expansion from air acoustics to underwater acoustics was part of the normal course of evolution into new fields that we have continued to follow.

A Mature Technology

"As we grew in the field of underwater acoustics, we gained a broad range of experience that allowed us to work in the all-encompassing area of system analysis," Dick notes. An example of this broad-based activity was the development of high-speed craft such as military hydrofoils, a project we worked on around 1980. This program was an amalgam of hydrofoil acoustics, advanced sonobuoy technology, submarine acoustics, advanced towed array technology, and high-performance torpedo acoustics. The combination of these technologies resulted in the development of ASW tactical use of hydrofoils. Dick presented a paper at the Offboard Sensor Symposium (a Navy-sponsored symposium), describing the results of this multidisciplinary theoretical/experimental program. "Our ability to work in this broad area," he says, "represents a measure of our growth in the field."

Perspective on BBN

In thinking about why he has stayed at BBN so long, Dick says, "It is a great place to work. We have the freedom to develop our own interests and to grow professionally. For me it has been an opportunity to work with some of the best scientists and engineers in our field. Research allows us to work in unknown territory where the outcome is often different from what we expected."

"Our work at BBN is most satisfying when we can develop an idea, market it, and conduct the research on it. Allowing researchers to see a project through from beginning to end is one of the strengths of BBN." Noting the changes he has seen over the years, Dick comments, " I look back to our early days in underwater acoustics and I marvel at the growth and maturity I see now."

When he leaves BBN, Dick plans to take the summer off, settle into his new house on the coast of Maine, and do some sailing. He will be coming back to BBN occasionally to work as a consultant.

WALDEN DISCUSSES REORGANIZATION

In the following article Dave Walden, President of BBN Systems and Technologies Corporation, responds to questions that have arisen about the reorganization and other matters.

You haven't written for the *Newsletter* before. Why have you agreed to an article now?

Since I'm the one who started the *Newsletter*, it seemed inappropriate to have an article that gave what might appear to be a self-serving description of my views on our company or of me. Also, I have not wanted to include articles in which I gave a pep-talk or lectured the staff, and I didn't want to include procedural instructions (such as how to fill out travel reports, or admonitions to return library books), because I'd like the *Newsletter* to be primarily a means for the staff members to learn about each other's activities, rather than for dictating procedures. However, people frequently ask me questions when they run into me, so I'll try to answer publicly some of the questions that I'm asked in person.

Why doesn't the *Newsletter* contain more hard news and technical information?

I initiated the *Newsletter* five years ago, because we had four or five separate divisions at half a dozen locations. I thought a newsletter might help people know a little more about each other and thus feel more like part of the same team. However, a newsletter that has 1000 copies distributed each month must be treated as a public document, and therefore we can't discuss many of our technical projects because it would be inappropriate for us to publicize information about our clients.

Therefore, we print uncontroversial articles such as brief biographies of new staff members, general descriptions of areas of staff technical activity, staff sports results, informational announcements, and occasional longer profiles of staff members. I wish more of the staff reported on their activities because that would make the *Newsletter* more interesting.

Why have we recently reorganized (again!) and changed our company name? This change has not been explained very much.

I gave the essential reasons for the reorganization in my announcement memo. We decided to combine DGI and Labs for several reasons: (a) to enable DGI and Labs to use all of each other's resources (such as

marketing, branch offices), (b) to improve the financial posture of the two organizations as they increasingly work together, and to substantially simplify the coordination of the DGI and Labs activities on our simulation and training contracts (for example, so that we can use interdivisional job numbers instead of intersubsidiary requisitions), and (c) to clarify for DGI staff that I have as much responsibility and concern for DGI as for Labs. Although DGI has reported to me since it was acquired by BBN, I've been president of Labs and not DGI, and this inconsistency led some DGI people to worry on occasion about my giving priority to Labs rather than DGI.

We also concluded that if we are to successfully pursue major contracts like the follow-on to SIM-NET and the next-generation underwater acoustics system, we must focus on these activities. Specific divisions, with their own marketing, seemed the best way to achieve this focus—especially in the underwater acoustics area, where the activities have for a long time been split across the Physical Sciences and Computer and Information Sciences divisions; hence our two new systems divisions, the Sensor and Surveillance Systems Division and the Simulation and Training Systems Division.

The decision to combine our physical sciences laboratories and our computer and information sciences laboratories activities into one division came from my desire to have these groups continue to increase their interactions and cooperation, especially as we try to increase in the next few years the proportion of R&D we do in the physical sciences relative to the consulting and experimentation we do in that area.

My feeling about change is that we should reorganize often enough to adjust to changing circumstances and to provide people with new activities and colleagues. The overall goal of change should always be to improve our business capability and the opportunities for our staff.

When considering reorganizations, we like to go slowly. Typically the division managements and I (and to some extent department management) discuss changes for months before implementing them. During this time we try to find the plan with the most benefits and least new problems (although every plan has some challenges, especially in placing personnel). During this time we get a sense from department managers of the general staff reaction to the proposed change.

And the name change?

Some of our Sensors and Surveillance Systems and Simulation and Training Systems clients and potential clients were using the name "BBN Laboratories" as a reason why we might not be a qualified contractor ("We are looking for a systems company, not a 'laboratory'"). Therefore, we decided to change the name to BBN Systems and Technologies Corporation (BBN STC). This change is also consistent with my own inclination to allow our charter to expand to include consulting, research, development, systems, and possibly products (such as Diamond). Our Scotland group also felt that they would have an easier time selling our services in Europe if we were a systems and technologies company instead of laboratories.

Why are we stressing division names rather than numbers?

Division numbers have a long history at BBN, and a particular division number may incorrectly be viewed as representing a technology, style, or culture. In order to emphasize the business reasons for the organizational change and to minimize negative or incorrect notions about divisions I have chosen to emphasize the divisions' names, which reflect their business thrust. The Accounting Department will still assign department numbers to track department expenses and aggregate them across the division (and the first digit of each department number will be the same for all departments in a division, but we will stress use of the names).

Are we ever going to have another companywide staff meeting?

I try to visit each non-Cambridge office a couple of times a year, and I usually speak to the staff when I make these visits. In Cambridge, we haven't had staff meetings lately because of the daunting logistics (how to schedule hundreds of people into a 175-seat auditorium), and because I feel less comfortable standing in front of 175 people "lecturing" them than sitting and chatting with a few dozen people. Perhaps divisions or departments should invite me to meet with them.

Some of us have known you for a long time, but others, who are relatively new to BBN, don't know much about you. What is your background, and what have you done at BBN?

I was born in Washington state and raised on the edge of the Central Valley in California (about 40 miles east of San Francisco). I graduated with a major in math from San Francisco State College in 1964. My first full-time job was at MIT's Lincoln Laboratory and my second was at BBN; in these two jobs I learned to program computers and build computer systems with lots of instruction from Will Crowther and Frank Heart. During my last years at Lincoln Laboratory and first years at BBN, I attended MIT part-time, completing the course work but not the thesis for an M.S. in computer science. I'm proud to note that I was the first programmer on BBN's PROPHET system (quickly replaced by Fred Webb) and, with Will Crowther and Bernie Cosell, programmed the original ARPANET packet switch.

Because I wanted to live in Europe, in 1970 I moved to Oslo, Norway, for a year, but I returned to BBN in 1971 and worked on the projects for the ARPANET TIP (which preceded the TAC) and the first version of the SATNET switch, and I was involved in little ways with the Pluribus parallel processor. For a few years I led our communications R&D activities as Assistant Division Director of the old Computer Systems Division. In 1978 I was made president of a BBN subsidiary to build and sell electronic mail systems, but this was not a success, and in 1980 I moved to BBNCC, where I was Executive Vice President with a variety of management responsibilities (including Technical Director for a time).

In 1982, I became Director of BBN's Professional Services Group (the predecessor to BBN Labs) with responsibility for BBN consulting, research, and development activities (and instructions to encourage interdivisional interaction) and then, in 1983, President of BBN Labs. Since 1987, I have been responsible for BBN DGI as well as BBN Labs, now combined under BBN Systems and Technologies Corporation.

NATO PROJECT NEARS COMPLETION

After six years, BBN's involvement in the development of an advanced research ship for NATO is coming to an end. On May 6, 1988, the research vessel *Alliance* was delivered at La Spezia, Italy, to the SACLANT Undersea Research Center, the principal underwater research organization of NATO. *Alliance* is one of the most advanced research vessels ever built and one of the quietest, thanks to BBN's involvement as acoustic consultant. The 93-meter-long ship displaces about 3,000 tons, is capable of 16 knots, and has a range of up to 8,000 nautical miles. *Alliance* can accommodate up to 20 scientists and their equipment, and has a crew of 27. The ship will sail as a public service vessel under the flag of the Federal Republic of Germany with an international crew of officers and seamen from NATO nations.

BBN's involvement in the project began in 1982, when the Naval Ship Research and Development Center (NSRDC) was tasked with advising the then-SACLANT Anti-Submarine Warfare Research Centre on the design and construction of a new research vessel to replace the *Maria Paolina G.*, a former cargo vessel adapted for marine research work and chartered to the Centre since 1964. NSRDC approached BBN Laboratories in order to draw on BBN's expertise in ship acoustics and on the experience of Arial George, a BBNer who had been involved in the design of the Canadian research ship, *Quest.* Mr. George has been project supervisor and has been living almost full-time in Italy in order to devote complete attention to the project.

BBN's initial role was to assist SACLANT Centre with the concept design of the ship. This work involved developing acoustic performance requirements for the new ship, performing a feasibility assessment of those requirements, translating them into hardware requirements, and developing the preliminary ship design and specification for international bid. BBN also assisted a panel of international experts composed of representatives from NATO member nations in evaluating bids submitted by shipbuilders. The shipbuilder Cantieri Navali Italiani (CNI) was selected to build the vessel in its shipyard at Muggiano, Italy.

During the detail design and construction process, a number of BBN staff joined Mr. George at Muggiano to develop analytical noise models, witness
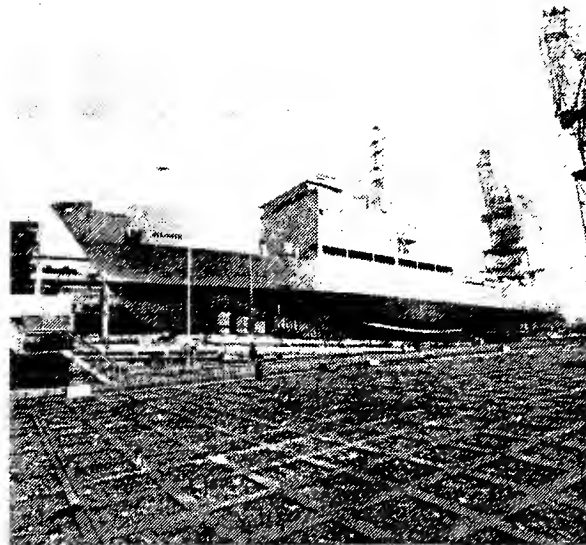
Alliance

vendor noise and vibration tests of machinery and equipment, review designs and drawings, inspect construction, and review specifications for machinery being incorporated into the ship.

Construction began in 1984 and was completed late last summer. At that time, several underwater radiated noise trials were held in the Mediterranean, but *Alliance* was so quiet and the Mediterranean so relatively noisy that it was virtually impossible to take the measurements. New trials took place from June 9 through 16 at Exuma Sound in the Bahamas. This site was selected because of the lower ambient noise present in the area. BBN is coordinating operations for these trials and will evaluate the noise data to determine compliance with ship specifications.

Designed and built for a range of experiments in deep and shallow water in acoustics and oceanography, *Alliance* will be available for use by NATO member nations doing research in those fields. Representative experiments include determining how sound waves behave in the sea, the effects of the ocean's characteristics and its boundaries on underwater sound, and the influence of ambient noise generated by man and nature. *Alliance* will provide an important platform for at-sea experiments and will greatly enhance SACLANT's research capability.

SIMNET DEMONSTRATION

Pictured from left to right are Duncan Miller, BBN's SIMNET Program Manager, Col. Jack Thorpe, DARPA Program Manager for SIMNET, and Raymond Colladay, Director of DARPA.

The first public demonstration of the SIMNET Long-Haul Network (LHN) was held at the 1988 U.S. Army Armor Conference at Fort Knox, Kentucky on May 10, 1988. At the demonstration, LHN linked SIMNET simulators in Cambridge with simulators at Fort Knox for long distance real-time training exercises. Dr. Raymond Colladay, director of DARPA, who participated in the SIMNET demonstration, commented that LHN "is a new concept of dial-up or 'conference call training' for widely dispersed forces."

SIMNET is designed to interconnect large numbers of manned, microcomputer-based combat vehicle simulators on a network for joint fighting operations. The SIMNET LHN uses satellite, microwave, or land links to connect multiple local area networks of simulators. Communications links on the network range from 56 kilobit-per-second dial-up data links to high-bandwidth dedicated satellite channels. Data compression techniques maximize the efficiency of communication channel usage and permit additional simulators to participate in global joint exercises. In the next year, it is expected that all SIMNET sites in the U.S. and Europe will be connected by high- and low-bandwidth data links supporting joint task forces and NATO operations.

RECEPTION HELD FOR DIVISION SCIENTISTS

On June 1, the Science Development Program sponsored a reception at the Conference Center at 10 Fawcett St. for those staff members who were appointed division scientists in fiscal years 1986 and 1987. The recently created position of division scientist is one of the three highest positions on BBN's technical career ladder. BBN Laboratories' promotional policy provides this career ladder, which is based on technical rather than managerial responsibility, in recognition of the importance of technical excellence at BBN. Those who choose to follow the technical career ladder are usually strong individual contributors or leaders of small groups working on specific projects. Until 1986, BBN had nine division scientists. At this reception the fourteen division scientists appointed since then were honored.

The following staff members were appointed to the position of division scientist in fiscal year 1986:

Henno Allik, technical leader of our finite elements activities, received an undergraduate degree from City University of New York and a Ph.D from New York University. He has been at BBN since 1982.

Robert (Rusty) Bobrow, a key technical contributor to our natural language R&D efforts, did his undergraduate and graduate work at MIT. He has been at BBN full-time since 1974 and was a part-time employee here before that.

Howard (Howie) Briscoe, a major architect of a number of digital signal processing systems, has been at BBN since 1969. Howie did his undergraduate and graduate work at MIT.

Arial (Rial) George, a key consultant in ship quieting, was educated at Tufts University and has been at BBN since 1970.

Creighton (Dick) Gogos, a key contributor to much of our ASW experimental work in underwater acoustics, studied at Northeastern. He has been at BBN since 1953.

Stephen (Steve) Milligan, a system architect and software development leader who is much in demand, has been at BBN since 1978. He

received his undergraduate degree from MIT and a Ph.D from the University of Rhode Island.

Bruce Roberts, known for his innovative work in applied AI, has been at BBN since 1979. He did his undergraduate and graduate work at the University of Michigan.

The following staff members were appointed division scientists in fiscal year 1987:

John Frederiksen, a well-known researcher in cognition in our Educational Technology Department, studied at Harvard as an undergraduate and received a Ph.D. from Princeton.

Colin Gordon, a key consultant in building vibration control, was educated in Glasgow, Scotland. He was at BBN from 1963 to 1966 and again since 1975.

John (Jack) Heine, a key technical leader in acoustics, particularly acoustic signal processing, has been at BBN since 1966. Jack did both his undergraduate and doctoral work at MIT.

William (Bill) Levison, distinguished researcher in the field of human performance, especially manual control. He has been at BBN since 1964, and he did his undergraduate and doctoral work at MIT.

Nathan (Nate) Martin, who has been a key technical leader in sonar acoustics, received an undergraduate degree and Sc.D from MIT. He has been at BBN since 1976.

Bruce Murray, known for his innovative mechanical design, has been at BBN since 1974. Bruce was educated at Derby Technical College in the U.K.

Candace (Candy) Sidner is a key researcher in knowledge representation for natural language, particularly for planning and discourse. Candy, who has been at BBN since 1979, received an undergraduate degree at Kalamazoo, a master's degree at the University of Pittsburgh, and a doctorate from MIT.

In acknowledging the achievements of the newly appointed division scientists, Dave Walden commented that among them these fourteen people had produced 225 publications and too many oral presentations and sponsored technical reports to count.

Pointing out that the scientific and technical staff are the basis of BBN's success, he thanked the new division scientists for their past contributions and looked forward to their future contributions.

BBN PERFORMS TESTS OF JAPANESE SHIP *KAIYO*

The BBN/Mitsui test team on the deck of the KAIYO. Front row, left to right: Kosuke Okuni, Dwight Davis, Jeff Doughty, John Scandurra, Mr. Mouranaka. Back row, left to right: Carl Cascio, George Abe, Joe Chadbourne, Mark Clifton, S. Seki, Dan Nelson, Doug Hanna, and Mark Sutterlin. Not pictured, Gregg Schudel, George Reagan, Rich Smart, and Tim Boyd.

In May, BBN Laboratories engineers performed dockside acoustic tests on board the Japanese ship *Kaiyo* in Chiba, Japan (near Tokyo). The *Kaiyo*, a Small Waterplane Area Twin Hull (SWATH) ship used for deep diving and oceanographic research, is owned and operated by the Japan Marine Science and Technology Center (JAMSTEC), a nationally funded research organization. Ships of the SWATH type have a unique hull design which offers improved stability over a conventional hull design in heavy seas. Woods Hole Oceanographic Institute sponsored the tests, to obtain full-scale test data which will be used to evaluate the acoustic performance of this type of hull configuration.

The BBN test team for this Washington-based project included engineers from the Washington, New London, and Cambridge offices. Assisting them were several engineers from the *Kaiyo's* builder, Mitsui Engineering and Shipbuilding Company. The tests were conducted at Mitsui's shipyard during the final days of the *Kaiyo's* first overhaul.

STAFF NEWS

Employment Anniversaries

The following employees have completed 5 to 35 years at BBN this June and July.

5 years —
- Debra Boseck
- Michael Cote
- Kathleen Huber
- John Morrison
- Arthur Pope
- Christine Tamoosh
- Beth Warren

10 years —
- Michael Coughlin
- Marguerite Diblasio
- Robert Gorman
- Thomas Graham
- Harold Perry
- Matthew Sneddon
- Benjamin Woznick

15 years —
- Robert Bobrow
- William Biker

20 years —
- Thomas Horrall
- Carol Prybylo

25 years —
- Duncan Miller
- Rein Pirn

35 years —
- Bill Watters

New Staff

Dan Cerys has joined the Laboratories Division of BBN STC to work in artificial intelligence. Before coming to BBN, Dan worked at Texas Instruments, designing software for their Explorer Lisp machine. He has also been Texas Instruments' visiting scientist at MIT for the past year and a half. Dan has B.S. and M.S. degrees in biological sciences from Stanford. His outside interests include amateur radio, bicycling, nordic skiing, and eating out.

Sam Marshall has joined the Washington Office to work in the area of sensors and surveillance. Sam comes to BBN from the Navy, where he was Director of the Navy Science Assistance Program (NSAP). Before that, he was NSAP Science Advisor to Commander Surface Force, U.S. Atlantic Fleet. For the preceding thirteen years, he did research in underwater acoustics and its applications to sonar at the Naval Research Laboratory and at the Naval Ocean Research and Development Agency

(NORDA). He was also associate editor of the U.S. Navy *Journal of Underwater Acoustics*. Sam has taught physics and has flown radar interceptors in the U.S. Air Force. He has a B.S. in physics from Virginia Military Institute and an M.S. and a Ph.D. in physics from Tulane University.

Gilbert Syswerda recently joined the Laboratories Division of BBN STC to work in artificial intelligence. He will be working on the Intelligent Laboratory Management System for the U.S. Navy. Gil holds an M.S. in computer science from the University of Michigan, where he studied under John Holland in the fields of genetic algorithms and classifier systems. His outside interests include sailing, backpacking, gardening, and a recently acquired interest in remodeling an old house.

Flynn Wins Fencing Championship
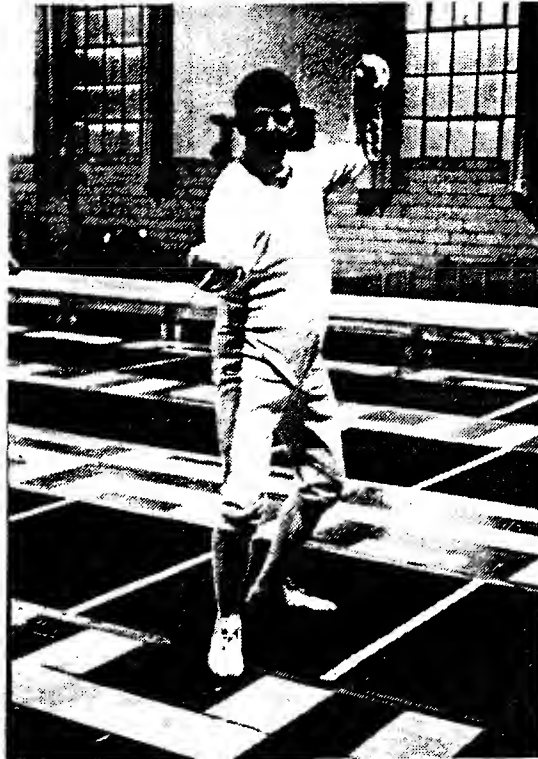
John Flynn, of the Washington Office, won the National Senior Championship title for the epee in the 45- to 50-year age group at the National Fencing Championships held in Chicago, June 18 through 26. The senior competition is traditionally divided into five-year age groups, starting with age 40 and going as high as necessary to accommodate those who wish to compete. This year there were six categories, covering age groups from 40 to 70. Separate competitions were held for the three fencing weapons: epee, foil, and sabre. John also won the overall

senior title in a competition among all the individual age group winners.

John began fencing at Texas A&M University in 1957 and continued the sport while he was a midshipman at the Naval Academy. He currently fences at the District of Columbia Fencing Club in Washington, D.C.

Ridlon Elected Vice President at BBN SPC

BBN Software Products Corporation (BBN SPC) announced that Linda Ridlon has been elected divisional vice president of customer services. In this capacity, she is responsible for managing technical documentation development, support services, and production and distribution. Linda, who joined BBN in 1981 as support manager for BBN Information Management Corp., was formerly director of customer services at BBN SPC. Linda has also worked at BBN Communications Corporation, where she was director of education services. Before joining BBN, Linda held a variety of marketing and management positions as an independent consultant and with several high-technology companies, including Digital Equipment Corporation and Dynamics Research Corporation.

New Appointments at BBN ACI

In July, BBN Advanced Computers Inc. announced the appointment of David Micciche to the position of vice president of marketing. Most recently, Dave was vice president of sales, marketing and service at Alliant Computer Systems, headquartered in Littleton, Mass. Previously, he spent 16 years at Digital Equipment Corporation in sales, marketing and general management positions in both the U.S. and Europe. In his new role, Dave will focus on helping ACI to become a leading provider of commercial systems to the industry for real-time simulation and other time-critical applications.

As part of BBN Advanced Computers' increased focus as an international computer product company, Gary Schmidt has been appointed to the new position of vice president of European market development. Gary will work closely with BBN STC's Scotland Office to develop marketing activities for parallel processing. Gary joined BBN Laboratories in 1984 to work on the Butterfly™ parallel processor and transferred to BBN ACI when it was established in 1986. Gary came to BBN from Artificial Intelligence Corporation in Waltham, Massachusetts.

Dedication of Computer Facility

On Thursday, June 23, the BBN Washington Computer Facility was dedicated in memory of James Louie, Ph.D., at a ceremony and reception attended by Jim's widow, Emma, and their daughter, Nicole. At the event, Jude Nitsche, Director of the Washington Office, officially dedicated the computer facility, and unveiled a bronze plaque to be placed at the door of the demonstration room on the twelfth floor. He then presented Emma with a scholarship for Nicole, a high school senior, and for the Louie's son, Daniel, a student at George Mason University. The scholarship consisted of contributions made by Jim's colleagues in Washington and in several other BBN offices.

The plaque dedicating the facility to him reads, in part: "... In 1980, Jim Louie brought the BBN Washington Office into the computer age. He worked tirelessly to specify and install our first networked computation system. Jim was a man of uncommon integrity and dignity. His generous spirit, fine mind, and keen sense of humor endeared him to all of his colleagues . . . ."

Recent Presentations and Publications

John Swets published an article titled "Measuring the Accuracy of Diagnostic Systems" in the June 3, 1988 issue of *Science*, No. 4857, pp. 1285-1293.

Intelligent Tutoring Systems; Lessons Learned, Psotka, Joseph et al eds. (including Dan Massey) NJ: Lawrence Earlbaum, 1988, contains the following articles by BBNers:

"The Development of Troubleshooting Expertise in Radar Mechanics" by Yvette J. Tenney and Laura C. Kurland

"Issues in Developing an Intelligent Tutor for a Real-World Domain: Training in Radar Mechanics" by Laura C. Kurland and Yvette J. Tenney

"Teaching Real-Time Tactical Thinking" by Frank Ritter and Wallace Feurzeig

"Intelligent Tutoring Systems for Electronic Troubleshooting" by John Frederiksen, Barbara White, and Allan Collins

"A Training System for System Maintenance" by L. Dan Massey, Jos deBruin, and Bruce Roberts

"Understanding Reflective Problem Solving" by Wallace Feurzeig and Frank Ritter.

Bill Levison presented a demonstration of the computerized implementation of a human operator model at the NATO Workshop on Applications of Human Performance Models to Systems Design, held in Orlando, Florida, on May 9-13. He also submitted a companion paper titled "The Optimal Control Model for Manually Controlled Systems," to be published in the conference proceedings.

John Zavgren presented a paper titled "The Performance Improvement from Receiver-Directed Transmissions in Packet-Radio Networks" at TCC '88 in Fort Wayne, Indiana, May 4, 1988. John also has an article forthcoming in the August 1988 issue of the *SIAM Journal on Optimization and Control*. The article is titled "Feedback Stabilization of Linear Dynamic Systems with Multirate Sampled Output."

The second edition of *Structure-Borne Sound* by L. Cremer and M. Heckl, translated from German by Eric Ungar, was recently published by Springer-Verlag.

Chip Bruce was a contributing author for a series of books published by D.C. Heath entitled *Heath Readers*. The books consitute a basal reading program for grades K to 8.

RUNNING NEWS

Manufacturer's Hanover

The Manufacturer's Hanover Corporate Challenge 3.5 Mile Race will start at Boston Common on Thursday, July 28 at 7:00 P.M. Last year's race drew 7000 runners from over 300 companies. If you are interested in signing up for the race, contact Liz DesCognets at ext. 2575 or Scott Thomson at ext. 1478. The AMBLERS will subsidize half of the $8 entry fee if you register by Thursday, July 21.

Hardesty Wins Women's Competition

On Saturday, June 18, 14 BBNers participated in the NECTA 5K Corporate Race at the Dedham campus of Northeastern University. Gwyn Hardesty won the women's competition with a time of 17:50, more than 40 seconds faster than the second-place finisher. Vanessa Rudin and Katy Yoon also performed well — both finished in the top of the Division 2 race.

Gwyn Hardesty nearing the finish line in the NECTA 5K Corporate Race.

In the men's race Charlie Eaves-Walton, of BBN STC's Scotland Office, finished with a time of 17:19, placing him first for BBN and 19th overall. Ken Hunt, also from Scotland, ran a strong 22:26. Dave Meltzer and Scott Thomson finished 3rd and 2nd for BBN and 33rd and 23rd overall, with times of 18:22 and 17:43 respectively. Tim Robichaud had an outstanding first race, passing nine runners in the last four hundred meters. His finishing time was 18:51, placing him 45th overall. Peter Mattera, Mario Morreia, Herb Rush, Brian MacNeil, Gary Joseph, and Rob McDaniel all finished with strong efforts in the 21-, 22-, and 23-minute range.

BBN BECOMES A UNITED WAY PACESETTER COMPANY

Last fall, BBNers contributed $78,663 to the Annual United Way Campaign. Impressed by our history of giving, the United Way has asked BBN to join approximately 50 Pacesetter companies in conducting their annual employee solicitations before the general campaign. The generous contributions received from these companies will permit this year's fall campaign to kick off with more than $1.2 million collected toward our $48.7 million community goal. Such contributions set an example for everyone.

When you receive a BBN United Way Pacesetter Pledgecard in your July 7 payroll envelopes, please take a minute to consider the challenges our communities are facing. Despite the strong economy in Massachusetts, the need for human services is rising, and federal support to meet the need is declining. The United Way is a vital resource in the community for providing food, affordable housing, child and spouse abuse prevention, home health care for the elderly, drug and alcohol abuse counseling, family guidance, AIDS research, child day care, and many other services.

A few changes in this year's campaign are worth noting. First, instead of holding our traditional kick-off event, BBN Inc. will increase its contribution 50% from last year — the money will be better spent by United Way! Second, because a significant proportion of BBNers live in the Merrimack Valley, the pledgecards now include charities in that United Way area as well as charities in the Massachusetts Bay area, where all contributions have been funneled in the past. Third, a new provision on the pledgecard allows contributors to specify which charities they would like to support. Even though most allocations will be made independently of requests, we feel that it is important for contributors to be able to tell the United Way which agencies they think are the most deserving.

The campaign will run from Thursday, July 7 through Friday, July 29. All pledgecards should be returned to Janet Putnam (room 11/506) before July 29.

Stuart Exell of BBN Systems and Technologies, Europe, shown participating in the benefit rowing contest in Edinburgh, with other BBN team members looking on (see May 1988 Labs Newsletter).

BBN STC REPORTS

BBN Report No. 6579, F-14 Modeling Study: Final Report, W. Levison

BBN Report No. 6605, Madera Road Vehicular Noise Study, A. Yazdanniyaz

BBN Report No. 6618, Assessment of Low-Frequency Vibrations at Proposed Site for Intel D-2, H. Amick, C. Gordon, and K. Pearsons

BBN Rpeort No. 6623, A Study of Floor Vibrations Caused by AGV Operations, H. Amick

BBN Report No. 6740, Traffic Noise Study Madera Road and Los Angeles Avenue, A. Yazdanniyaz

BBN Report No. 6748 and 6748R, Noise Study for Proposed Sawtelle Residential Complex in the Community of Palms, R. Nugent

BBN Report No. 6753, A Study of Metro Rail Vibration as It Might Affect the Kaiser Permanente Facilities Adjacent to Sunset Blvd., R. Nugent

BBN Report No. 6792, Draft EIS: Technical Appendix Noise and Vibrations IH35W/IH#, Fort Worth, D. Coate

BBN Report No. 6809, Environmental Noise Impact Assessment Modernization of the Boise Cascade Rumford Mill, Rumford, Maine, E. Wood, D. Coate, and S. Munier

BBN Report No. 6851, ELASTIC and Reasoning Under Uncertainty, A. Rubin, A. Rosebery, and B. Bruce

BBN Report No. 6861, Multisensor ADM Design Plan, A. Derr, V. Viswanathan, and D. Whittemore

Camb TM 997, T-AGS Sonar Dome Area Self-Noise Improvement Investigation, D. Sachs, et al.

TIR 107, Detecting Black Holes in Packet Radio Networks, J. Ong and G. Lauer

TIR 108, The Diamond User Interface Toolkit: Introduction, Diamond Dialogs, Diamond Programmer's Style Sheet, H. Forsdick, et al.

TIR 109, The Intelligent Gateway Troubleshooter, M. Leib

NEWSLETTER EDITORIAL POLICY

This newsletter must be careful to avoid printing items that are of proprietary interest either to a customer or to BBN STC, or that would otherwise be unavailable to competitors, or that might be of special interest and otherwise unavailable to the investment community. Thus, for example, we will not usually print items regarding proposed or ongoing contracts or, in some cases, completed contracts. If you think you have an item of interest for the newsletter and don't know whether it falls under the above rule or not, please submit it, but please understand if we cannot use it.

WANTED: PHOTOGRAPHS FOR BBN STC NEWSLETTER

Anyone interested in submitting photographs for use in the *BBN STC Newsletter* should send them (negatives, black & white or color prints, or slides) to Cheryl Mammone, room 6/576. Unfortunately, we will not always be able to return photographs.

NEWS ITEMS SOLICITED

The *BBN STC Newsletter* is published monthly. Send news items to Cheryl Mammone via interoffice mail or via electronic mail to *cmammone*; the deadline for accepting contributions is the 15th of each month.

NEWSLETTER STAFF

The *BBN STC Newsletter* is edited by Debbie Melone and Cheryl Mammone, with help from many others.